ISS and Human Research Project Office Highlights
May 28, 2010

ISS Research Program

ISS Research Project conducts IBR for SOMD

The GRC ISS Research Project conducted an Integrated Baseline Review (IBR) for the Space Operations Mission Directorate (SOMD) on Tuesday, May 18, 2010 at the GRC Guerin Management Center. The presentation was made to Mark Uhran, the SOMD Assistant AA for ISS Utilization and to Julie Robinson, the ISS Program Scientist. The IBR provided an overview of the project's content and budget requirements for FY11-FY15 as SOMD prepares to take over management responsibility of the Project from the Exploration Systems Mission Directorate (ESMD) starting in FY11. Mr. Uhran and Julie Robinson have been on a 'round-robin' tour of all ISS Research Project field centers, including ARC, GRC, JPL, KSC and MSFC. (POC: MAH/Thomas St. Onge, (216) 433-3557)

Award winning paper:

The paper: "Measurement of Smoke Particle Size under Low-Gravity Conditions," presented at the 2008 International Conference on Environmental Systems (ICES) by Urban, Ruff, (GRC) Yuan (NCSER), Yang and Cleary (NIST) and Mulholland (UMD) was chosen to receive the 2008 SAE Arch T. Colwell Merit Award to be presented at the SAE 2011 World Congress. Colwell awards are given to papers judged for their value as contributions to existing knowledge of mobility engineering, and primarily with respect to their value as an original contribution to the subject matter. The subject paper presented the preliminary results from the Smoke Aerosol Measurement Experiment (SAME) which included the first on-orbit measurement of smoke particulate size. (POC: REC/David Urban, (216) 433-2835, MAC/Gary Ruff, (216) 433-5697)

Shuttle to return the Constrained Vapor Bubble (CVB) experiment modules from ISS.

The STS-132, ULF-4, is scheduled to return two of the completed CVB modules on May 26. The 30mm Pentane and the Dry calibration/control modules have successfully complete science operations and will be used to verify preflight ground testing. To date three journal articles are planned for these results. The 30mm module may be refurbished with a mixed fluid to be a reflight experiment in 2012. (POC: MAH/Ronald Sicker, (216) 433-6498)

Materials International Space Station Experiment 4 (MISSE 4) Erosion Data Obtained:
The Materials International Space Station Experiment 3 & 4 (MISSE 3 & 4) experiments included two NASA Glenn Research Center experiments, the Polymer Film Thermal Control (PFTC) Experiment and the Gossamer Materials Experiment. The objectives included investigating changes in polymer film optical properties and mechanical properties, and characterization of atomic oxygen erosion yields. Atomic oxygen erosion yields have been determined for the designated experiment samples (Kapton HN, Teflon fluorinated ethylene propylene (FEP), Upilex-S, Clear Polyimide 1 (CP-1) and Ge-coated Kapton XC). The data will be included in the paper "Evaluation of Optical Properties and Atomic Oxygen Erosion Yields of Polymer Film Materials Exposed to the Space Environment on MISSE 3 & 4" by Joyce Dever, Deborah Waters, Kim de Groh, and Quang-Viet Nguyen. This paper has been accepted for presentation in the MISSE Session at the 2010 National Space & Missile Materials Symposium

(NSMMS) to be held June 28 - July 1, 2010 in Scottsdale, AZ. This research is a collaborative effort with Kim de Groh (RES) and Bruce Banks (Alphaport/RES). This work is supported by the ISS Research Project (POC: RES/Kim K. deGroh, (216) 433-2297).

NASA Glenn and Plum Brook Station conclude successful Math and Science Week at Cedar Point

May 17-21, 2010 is Math & Science Week at the Cedar Point Amusement Park, and NASA Glenn is a major participant in this educational outreach to students, teachers, and the general public who come from Ohio, Michigan, and beyond. Nancy R. Hall/MAH again coordinated this center-wide event and various organizations selected a day to highlight their projects or programs.

On Thursday, May 20, the Education Program Office used the Educator Cart to demonstrate a vacuum chamber and alcohol rockets to students and the public. NASA CORE was there with educational materials and handouts and two FIRST Robotics teams, Team # 963 from the South and East Robotics Alliance in Columbus, OH and Team # 1787 from Orange High School in Pepper Pike, OH brought their robots to the park and demonstrated this year's FIRST Robotics challenge. On Friday, May 21, Plum Brook Station had four booths highlighting different exhibits such as: the effects of liquid nitrogen on roses, bananas, balloons and grapes; a reverberation box where wine glasses were shattered to show the effect of vibroacoustics, an 8ft bell jar exhibit highlighted the effects of vacuum on various items and a "replica" of the B-2 facility was built and was used to fire off a mini rocket engine. All four booths were jammed pack with students and the public but the liquid nitrogen demo was the highlight of the day.

Throughout the week, additional volunteers staffed the NASA "Picture Yourself in Space" Photobooth and the Qwizdom Space Trivia Game. Representatives from Great Lakes Science Center were present several days that week highlighting their various programs. The exhibits folks supported us with setup and tear down. On Friday astronaut Mike Foreman was at Cedar Point and gave a talk to students about his experience on the shuttle. It is estimated that hundreds of students in addition to members of the general public visited the various booths on display during the week. (POC: MAH/Nancy Rabel Hall, (216) 433-5643)

Mike Foreman signing autographs

FIRST Robotics Teams #1787 and #963

Plum Brook Station Personnel demonstrating the effect of liquid nitrogen on a rose.